

Application No. 10/664265
Page 4

Amendment
Attorney Docket No. E14.2P-10817-US02

Remarks

This Amendment is in response to the Office Action dated March 1, 2006.

Election/Restriction

Restriction was made via telephone to one of the following inventions under 35 U.S.C. §121:

- I. Claims 43-52, drawn to a method of cleaning PET containers using an alkyl diphenylene oxide disulfonate;
- II. Claims 53-55, drawn to a method of cleaning PET containers using polyether sulfonates or phosphates; and
- III. Claims 56 and 57, drawn to a method of cleaning PET containers using an alkanolamide.

A provisional election was made with traverse, to prosecute the invention of Group I, claims 43-52. Applicant hereby affirms election of Group I, claims 43-52.

Rejections

35 U.S.C. §103(a)

Cords et al., US 6554004

Claims 43-45 and 47-50 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Cords et al., US 6,554,005. The Office Action asserts that:

Cords et al. teach a cleaning method for polyethylene terephthalate containers (see abstract). An example of such a composition comprises 5% EO/PO block copolymer, 10% gluconic acid, 8% of a mixture of two phosphonic acid sequestrants, and 12% sodium cumene sulfonate coupler (col. 9, example 2A). Preferred couplers of the invention include C12 diphenyl oxide disulfonate (col. 6, lines 14-24). Accordingly, it would have been obvious to one of ordinary skill in the art to use C12 diphenyl oxide disulfonate as the coupler in example 2A as couplers are an essential part of the invention and the reference teaches this compound as a preferred coupler.

Applicants traverse the rejection.

Application No. 10/664265
Page 5

Amendment
Attorney Docket No. E14.2P-10817-US02

Independent claim 43 of the present invention is directed to a method of cleaning and protecting polyalkylene terephthalate containers, the method including the step of contacting the polyalkylene terephthalate containers with an alkaline composition formed by diluting a concentrate which includes about 1% to about 20% of at least one C₁₂ to C₂₀ alkyl diphenylene oxide disulfonate and mixtures thereof, about 1% to about 20% of a nonionic defoamer and about 1% to about 40% of at least one sequestrant selected from the group consisting of phosphonates, gluconates, phosphates and mixtures thereof.

The alkyl diphenyl oxide disulfonate is an essential part of the embodiment recited in claim 1. See examples 3 and 4 found on pages 16-17. Furthermore, Applicants have shown surprising results in *both* cleaning, i.e. mold removal, and protection of PET containers when employing alkyl diphenylene oxide disulfonates of the type recited in claim 1. These surprising results have been illustrated through the use of comparative data which is summarized in FIG. 1 of the present application. As shown in FIG. 1, only a few compositions exhibited both excellent cleaning, i.e. mold removal, and excellent protection, i.e. non-hazing or non-corroding, of the PET. Examples 2-4 and 7 (examples 3 and 4 include alkyl diphenyl oxide disulfonate protectors) exhibited both excellent cleaning with respect to mold and excellent compatibility with PET in that no corrosion or hazing were seen on the PET.

Examples 5 and 6, in contrast, exhibited excellent protection of PET, but did not exhibit excellent mold removal.

Comparative examples A and D, on the other hand, both of which include sodium aromatic sulfonates, i.e. sodium naphthalene sulfonate and sodium xylene sulfonate respectively, either lacked cleaning ability, or lacked both cleaning and protection as in the latter case.

Applicants submit that Cords et al., with respect to couplers, disclose the following:

D. Couplers

The composition of the invention may also include a coupling agent. The coupling agent functions to stabilize the concentrate composition so that it is a true phase stable solution.

To this end, any number of organic coupling agents may be used including

Application No. 10/664265
Page 6

Amendment
Attorney Docket No. E14.2P-10817-US02

sulfates, sulfonates, as well as monofunctional and polyfunctional alcohols. Preferred coupling agents include sulfonate and sulfate compounds such as sodium xylene sulfonate, sodium cumene sulfonate, sodium toluene sulfonate, 2-ethylhexyl sulfate, alkyl diphenyl oxide disulfonate where the alkyl group is either a branched C₁₂ or a linear C₁₀ sodium alkyl naphthalene sulfonate, and sodium octane sulfonate and disulfonate, and mixtures thereof.

Those coupling agents which have been found useful include linear alkyl alcohols such as, for example, ethanol, isopropanol, and the like. Also useful are polyfunctional hydroxy compounds such as alkylene glycols like hexylene glycol and propylene glycol; phosphate esters including Gafac RP710 from Rhone-Poulence Chemicals, and Triton H-66 from Rohm & Haas Co.

Column 4, lines 9-31

Accordingly, based on the disclosure of Cords et al., one would expect that the preferred couplers, sodium xylene sulfonate, sodium cumene sulfonate, and sodium naphthalene sulfonate, for example, would perform equivalently to the sodium alkyl diphenylene oxide disulfonates recited in claim 43 of the present application.

They do not.

Applicants submit that a surprising and unexpected result has been achieved through the use of some protectants/cleaners, namely, the alkyl diphenyl oxide disulfonates recited in independent claim 43, but not others such as the sodium aromatic sulfonates.

When a chemical composition is claimed, a *prima facie* case of obviousness under Section 103 may be established by the PTO's citation of a reference to a similar composition, the presumption being that similar compositions have similar properties. See *In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc) ("structural similarity between claimed and prior art subject matter, . . . where the prior art gives reason or motivation to make the claimed compositions, creates a *prima facie* case of obviousness"), cert. denied, 500 U.S. 904 (1991). One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of "unexpected results," i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. The basic principle behind this rule is straightforward -- that which would have been surprising to a person of ordinary skill in a particular art would not have been obvious. The principle applies most often to the less predictable fields, such as chemistry, where minor changes in a product or process may yield substantially different results.

Application No. 10/664265
Page 7

Amendment
Attorney Docket No. E14.2P-10817-US02

Consistent with the rule that all evidence of nonobviousness must be considered when assessing patentability, the PTO must consider *comparative data* in the specification in determining whether the claimed invention provides unexpected results. *In re Margolis*, 785 F.2d 1029, 1031, 228 USPQ 940, 941-42 (Fed. Cir. 1986). However, "[i]t is well settled that unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification does not suffice." *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984); see also *In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978) ("Mere lawyer's arguments and conclusory statements in the specification, unsupported by objective evidence, are insufficient to establish unexpected results."); *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972) ("[M]ere conclusory statements in the specification . . . are entitled to little weight when the Patent Office questions the efficacy of those statements.").

In re Soni, 34 USPQ2d 1684, 1687 (Fed. Cir., 1995) (emphasis added).

Applicants have shown unexpected results in the specification in the form of comparative data. Applicants employed a base formula shown in Table 1 and page 15, and to this base formula, added a variety of protectants as shown in Table 2 on page 16. Each resultant formula was tested for both mold removal and for PET compatibility using the methods described on pages 13 and 14. Surprisingly, the alkyl diphenyl oxide disulfonates (examples 3 and 4 on page 16 and in Figure 1) exhibited both excellent cleaning and excellent compatibility with PET. In fact, example 3, in addition to having excellent PET compatibility, also exhibited the best cleaning results. In contrast, sodium naphthalene sulfonate, comparative A, exhibited poor cleaning and sodium xylene sulfonate, comparative D, exhibited poor cleaning and poor PET compatibility.

As the expectation would of course be that the preferred couplers recited in Cords et al., including the alkyl diphenyl oxide disulfonates and the sodium aromatic sulfonates would perform equivalently, and they do not, Applicants submit that this showing of unexpected results is sufficient to rebut a *prima facie* case of obviousness.

Claims 43-45 and 47-50 depend from claim 43 and are patentable for at least the reasons that claim 43 is patentable.

Applicants respectfully request withdrawal of the rejection of claims 43-45 and 47-50 under 35 U.S.C. §103(a) as being unpatentable over Cords et al., US 6,554,005.

Application No. 10/664265
Page 8

Amendment
Attorney Docket No. E14.2P-10817-US02

Peters et al., US 6090860

Claims 43-46 and 49-52 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Peters et al., US 6,090,860. The Office Action asserts that:

Peters et al. teach a method of recycling PET containers utilizing a composition comprising sodium hexyldiphenylether disulfonate as a lifting agent (col. 13, example 3). Preferred lifting agents of the invention include dodecyl diphenyl oxide disulfonate and hexadecyl diphenyl oxide disulfonate (col. 10, lines 49-65). Suitable basic compounds of the invention include phosphates (col. 7, lines 49-53), suitable acids include organic phosphorous acids (col. 8, lines 39-40), and suitable defoamers of the invention include polyphosphates and gluconates (col. 12, lines 59-64)....It would have been obvious to one of ordinary skill in the art to formulate a composition containing dodecyl diphenyl oxide disulfonate or hexadecyl diphenyl oxide disulfonate, phosphates, gluconates, and organic polymer defoamers, of which EO/PO block copolymers are among the most common, as all of these components are taught as preferred or suitable additives of the PET treatment compositions of the references.

Applicants traverse the rejection.

Applicants have discussed claim 43 above.

Applicants submit that Peters et al. disclose a long list of lifting agents including anionic, cationic, nonionic and amphoteric surfactants. Peters et al. in fact refer to McCutcheon's "Volume I: Emulsifiers and Detergents", 1995, North American Edition, published by McCutcheon's Division MCP Publishing Corp., Glen Rock, N.J., and in particular, pp. 1-232 which describes a number of anionic, cationic, nonionic and amphoteric surfactants. Examples include fluorocarbon surfactants, sulfosuccinate surfactants, alkoxylated alcohols, alkoxylated phenols, polyoxyalkylene glycols, phosphate esters, aromatic sulfonates, diphenylsulfonates, alkoxylated alkyl aromatics and mixtures thereof (column 9, line 5 to column 11, line 5).

Preferred embodiments, especially those involving a basic compound, include an anionic surfactant or a cationic surfactant, fluorocarbon surfactants preferably anionic fluorocarbon surfactant (column 9, lines 21-25).

Preferred embodiments, especially those involving an acid compound, include a nonionic surfactant or an alkoxylated alkylaromatic surfactant (column 9, lines 26-30).

In another embodiment, the lifting agent is a sulfosuccinate surfactant or a

Application No. 10/664265

Page 9

Amendment
Attorney Docket No. E14.2P-10817-US02

derivative thereof (col. 9, lines 47-51).

“In another embodiment, the lifting agent is a modified alkoxylated surfactant. In a preferred embodiment, the lifting agent is an anionic modified ethoxylate surfactant.” (col. 9, lines 60-62).

“In another embodiment, the lifting agent is hydrocarbylphenol alkoxylate, such as an alkylphenol ethoxylate surfactant. The hydrocarbyl group may contain 1 to about 24 and preferably 2 to about 18 carbon atoms.” (column 10, lines 7-10).

“In another embodiment, the surfactant is a polyoxyalkylene glycol.” (col. 10, lines 23-24).

“In another embodiment, the lifting agent is a phosphate ester surfactant such as an alkali metal phosphate.” (col. 10, lines 29-30).

“In another embodiment, the lifting agent is an aromatic sulfonate surfactant, such as a naphthalene sulfonate or hydrocarbyl substituted naphthalene sulfonate surfactant, a benzene or hydrocarbyl substituted benzene sulfonate surfactant, an anthracene or hydrocarbyl substituted anthracene sulfonate and a phenyl or hydrocarbyl substituted phenyl sulfonate...In a preferred embodiment, the lifting agent is an anionic alkyl naphthalene sulfonate surfactant. Examples include naphthalene and alkyl naphthalene alkali metal sulfonates such as naphthalene and alkyl naphthalene sodium sulfonates.” (col. 10, lines 40-52).

“In another embodiment, the lifting agent is a diphenyl sulfonate or derivative thereof. In a preferred embodiment, the lifting agent is an anionic diphenyl sulfonate surfactant or a hydrocarbyl substituted derivative thereof where the hydrocarbyl group contains 1 to about 24 and preferably 1 to about 12 carbon atoms. Specific examples include alkali metal alkyl diphenyl oxide disulfonates such as sodium hexyldiphenyloxide disulfonate, sodium decyldiphenyloxide disulfonate, dodecyldiphenyloxide disulfonic acid, sodium dodecyldiphenyloxide disulfonate, N-decyldiphenyloxide disulfonate, sodium n-decyldiphenyloxide disulfonate and sodium n-hexadecyldiphenyloxide disulfonate.” (col. 10, lines 56-67 and col. 11, line 1).

Independent claims 43 and 51 are patentable over Peters et al. for at least the reasons as discussed above with respect to Cords et al. Surprising results in the form of comparative data shown in the specification, is enough to rebut a *prima facie* showing of obviousness, if one is shown.

*Application No. 10/664265**Page 10**Amendment**Attorney Docket No. E14.2P-10817-US02*

Furthermore, as to independent claim 43, Applicants submit that a prima facie case of obviousness has not been established because while Peters et al. suggest nonionic surfactants as lifting agents, Peters et al. fail to suggest making the specific combination of an alkyl diphenylene oxide disulfonate with a nonionic defoamer and a gluconate, phosphonate or phosphate sequestrant.

Further with respect to claim 50, Peters et al. fail to suggest the use of any nonionic EO/PO block copolymer. Peters et al. suggest modified alkoxylated surfactant. In a preferred embodiment, the lifting agent is an anionic modified ethoxylate surfactant, but fail to suggest nonionic EO/PO block copolymers. See col. 9, lines 60-67 to col. 10, lines 1-7).

Claims 44-46 and 49-50 depend from claim 43 and are patentable for at least the reasons that claim 43 is patentable and claim 52 depends from claim 51 and is patentable for at least the reasons that claim 51 is patentable.

Applicants respectfully request withdrawal of the rejection of claims 43-46 and 49-52 under 35 U.S.C. §103(a) as being unpatentable over Peters et al., US 6,090,860.

Man et al., US 6838422 in view of Rossio, 5223162

Claims 43-52 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Man et al., US 6,838,422 in view of Rossio, US 5,223,162.

The Office Action asserts that:

Man et al. teach a plastic compatible detergent comprising up to 10% anionic surfactant, up to 10% EO/PO copolymer surfactant and up to 10% chelant (col. 13, table 3). Preferred anionic surfactants of the invention are alkyl diphenylene oxide disulfonates wherein a C12 alkyl group is preferred and the alkyl group may be as high as C18 (col. 11, lines 24-356)....Rossio teaches a bottle washing composition for polyalkylene terephthalate comprising anionic surfactant, a phosphonate sequestrant, and sodium gluconate (col. 7, example III).

Applicants traverse the rejection for the same reasons as given above.

Man et al. discloses for use in the plastics compatible detergent composition about 0.01 wt. % to about 10 wt. % anionic surfactant; about 0.01 wt. % to about 10 wt. % cationic surfactant; about 0.01 wt. % to about 10 wt. % of at least one of reverse polyoxyalkylene block copolymer surfactant, alcohol alkoxylate surfactant having polyoxypropylene and/or

Application No. 10/664265

Page 11

Amendment

Attorney Docket No. E14.2P-10817-US02

polyoxybutylene end groups, and mixtures thereof; about 0.01 wt. % to about 10 wt. % alkylpolyglycoside surfactant; and about 0.01 wt. % to about 20 wt. % silicone surfactant. The expectation, of course, is still that all of these surfactants perform equivalently with no reason to select one over another. Combining Rossio with Man et al. does not change this expectation.

As discussed above, Applicants have shown unexpected results which rebuts a *prima facie* case of obviousness. Applicants submit that claims 43-52 are patentable over the combination of Man et al. and Rossio for at least this reason.

Applicants respectfully request withdrawal of the rejection of claims 43-52 under 35 U.S.C. §103(a) as being unpatentable over Man et al., US 6,838,422 in view of Rossio, US 5,223,162.

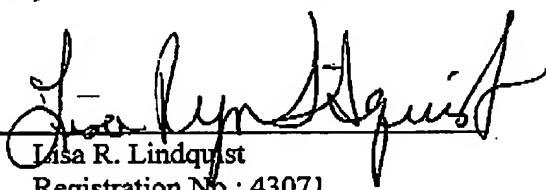
CONCLUSION

Claims 43-52 are pending in the application. Applicants have addressed each of the issues presented in the Office Action. Based on the foregoing, Applicants respectfully request reconsideration and an early allowance of the claims as presented. Should any issues remain, the attorney of record may be reached at (952)563-3011 to expedite prosecution of this application.

Respectfully submitted,

VIDAS, ARRETT & STEINKRAUS

Date: April 19, 2006

By: 
Lisa R. Lindquist
Registration No.: 43071

6109 Blue Circle Drive, Suite 2000
Minnetonka, MN 55343-9185
Telephone: (952) 563-3000
Facsimile: (952) 563-3001

f:\wpwork\lrf\10817us02_and_20060309.doc